***On-the-Job Training Standards***

***For***

***Tourist and Excursion Mechanical Employees***

***Steam Engines***

*January 2, 2021*

***Foreword***

*The OJT tasks identified below assumes a continuous and ongoing positive conversation between the designated instructor / qualified person and trainee. It means sufficient opportunity for conversational feedback before, during, and after any task is undertaken. The purpose of this conversation is to ensure learning transfer occurs. Depending on task complexity and learner skill level, most adults gain mastery of new skills through practice and repetition. OJT standards provide the basis for measuring mastery of new skills in a fair and objective manner. It is understood that many of the tasks below are presented in a manner that may suggest non-complying conditions must be present for the trainee to demonstrate proficiency. That is not the case and it is for this reason that a positive conversation between teacher and learner is encouraged throughout the OJT process.*

*Please also note that there is no obligation under 49 CFR Part 243 for employers to train safety-related railroad employees on skills they will never apply in connection with their duties. For example, if an employee will not be required to perform a single car test, no training on that particular task is required.* **On-the-Job Training Roles and Responsibilities – Example Template**

1. The **designated instructor** serves as the overall coordinator of the specific OJT program and is primarily responsible for:
	* Acting as the principal point of contact for the process, and ensuring the process is properly implemented.
	* Ensuring that all trainees and qualified persons involved in the OJT process have received hard copies of the OJT program or electronic copies of the checklist.
	* Providing guidance to both the trainee and qualified person in the process once they have received the OJT program.
	* Ensuring that trainees have access to all the supporting publications listed in this OJT program.
	* Ensuring the trainee has successfully completed all safety-related tasks to become a qualified member of an occupational category or subcategory.
2. The **qualified person** (sometimes referred to as a peer trainer) may serve as the mentor/coach for trainees. The qualified person must be qualified and has a duty to communicate with the trainees to ensure OJT is properly administered throughout the process. The qualified person will also provide daily briefings at the beginning and end of each day regarding the specific tasks focused on during that day. The trainee may perform OJT under the direct onsite observation of any qualified person, provided the qualified person has been advised of the circumstances and is capable of intervening if an unsafe act or noncompliance with Federal railroad safety laws, regulations, or orders is observed. **However, the trainee must demonstrate OJT proficiency to the satisfaction of the designated instructor to become a qualified member of an occupational category or subcategory.** A designated instructor and qualified person can be the same person*.*
3. The **trainee** (new hire)has the responsibility to pay close attention to the qualified person providing OJT, and to take advantage of the knowledge and experience he or she has to offer. Tracking progress of the OJT is essential and is the trainee’s responsibility. Trainees should be aware of, and abide by, the following:
	* The designated instructor and/or qualified person will provide practical information and advice on the requirements and responsibilities of assigned duties.
	* Trainees are responsible for completing any narrative and self-study assignments outside the scope of this OJT program. Additional assignments are an integral part of the training experience and must be completed before being deemed qualified by the employer.
* To gain the maximum benefit from the OJT experience, trainees should:
* Remain alert and involved in the training activities.
* Ask questions and learn from feedback.
* Take notes and apply previous lessons.
* Complete all required assignments.
* Become familiar with and comply with FRA regulations, railroad safety rules, and other procedures mandated as a condition of employment by the employer.
* Develop and maintain a learning attitude.
* The OJT experience is designed to be much more than following a qualified person around and watching what he or she does. Trainees must take an active role in the OJT and thoroughly engage in the various job tasks outlined in this OJT program.

* Expect the qualified person to say, “Here, you give it a try.” Remember, while progressing through the OJT program, trainees can learn skills, to develop knowledge, and to adopt work habits and routines that will last throughout a railroad career.
* Tracking and documenting OJT progress is an essential process step.

**Guidelines for On-the-Job Training Program Coordination and Administration**

In most cases, the first week or so of employment will involve administrative details and an overall orientation. Although it is understood that a trainee’s duties may overlap with other organizational requirements, each day of OJT should focus on one of the major duties of the OJT program to the extent possible. Once the tasks have been selected, there should be both an initial briefing on the tasks to be completed at the beginning and end of each day.

* The purpose of the debriefing is to go through the day’s activities, and to focus on each of the tasks associated with the task selected.
* There is no required sequential order for completing the OJT associated with any task, and no attempt is made to prioritize any tasks. Although OJT should be focused on a task, it is anticipated that the task standards will be accomplished based on available training opportunities.

**Important Note:** Although OJT is a critical aspect of 49 CFR Part 243, FRA will consider, on a case by case basis, alternate approaches to OJT in lieu of the traditional approach (*see 49 CFR § 243.5- On-the-job training*). For example, some employers or training organizations may have access to state of the art indoor/outdoor training facilities that permit students to practice tasks that require neuromuscular coordination to learn in a controlled environment with minimal or no risk of personal injury. Other approaches may include; classroom practical exercises, role play, lab simulation, virtual reality (VR), and other emerging technologies. While FRA does encourage alternate approaches to OJT to lessen the risk of personal injury exposure to students, enough detail must be included in the submission and satisfy the regulatory requirements of 49 CFR § 243.101(d) (1-3).

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| Task X: Understand Steam Locomotive and Passenger /Freight Car Air Brake Systems - Part 232, Appendix B |
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| **Performance****Tasks** | **Conditions****Tools, Equipment, Documents, Practice** | **Standards****Time, Completeness, or Accuracy** |
| **Task X-X:** Demonstrate an understanding of steam locomotive and car brake systems. | Given an opportunity to read the appropriate air brake pamphlets, 49 CFR Part 230 and 232, a briefing by the designated instructor or qualified person, the trainee will:  | Correctly identify and describe each of the following to the satisfaction of designated instructor or qualified person:* Brake system name.
* Component names and purpose.
* Graduated release (where available).
* Direct release.
* Feed valve braking.
* Periodic cleaning and test intervals.
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| **Task X-X:**  Demonstrate an understanding of passenger/freight car single car tests. | Given an opportunity to read CFR Part 232, Appendix B, the latest revision of AAR S0-XXX, (placeholder for other sources), and to observe at least two single car tests, a briefing by the designated instructor or qualified person, the trainee will:  | Perform a single car test on three separate occasions with 100 percent accuracy, and explain steps during the test to the satisfaction of designated instructor or qualified person:* Purpose of each step in the overall (SCT) test process.
* Frequency.
* Single car test triggers.
* Calibration and documentation.
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| Task X: Apply Safety Appliance Standards on Steam Locomotives Used in Road Service - Part 231 |
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| **Performance****Tasks** | **Conditions****Tools, Equipment, Documents, Practice** | **Standards****Time, Completeness, or Accuracy** |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting steam locomotives. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.15 these OJT standards, and to participate in at least five separate inspections of a steam locomotive with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Tender sill steps (four) located on each corner of tender): * Bottom tread not less than 8 by 12 inches, if stirrup used clearance of tread shall not be less than 10 inches.
* Securely fastened with bolts or rivets.
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| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting steam locomotives. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.15 these OJT standards, and to participate in at least five separate inspections of a steam locomotive with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Pilot sill steps (two) located on each end on or near each end of buffer-beam outside of rail and not more than 16 inches above rail): Tread not less than 8 inches in width by 10 inches in length. Securely fastened with bolts or rivets. |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting steam locomotives. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.15 these OJT standards, and to participate in at least five separate inspections of a steam locomotive with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Pilot-beam handholds (one) each end of buffer-beam and uncoupling lever may be used in lieu of handholds if lever extends across front end of locomotive to within 8 inches of end of buffer-beam, and is seven-eighths of an inch or more in diameter, securely fastened, with a clearance of 2 ½ inches:* Minimum diameter five-eighths of an inch.
* Minimum clear length 14 inches.
* Minimum clearance 2 ½ inches.
* Securely fastened with bolts or rivets.
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| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting steam locomotives. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.15 these OJT standards, and to participate in at least five separate inspections of a steam locomotive with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Side handholds (six) horizontal or vertical. If vertical, one on each side of tender within 6 inches of rear or on corner. One on each side of tender near gangway and one on each side of locomotive at gangway applied vertically:* Minimum diameter seven-eighths of an inch.
* Minimum clear length 16 inches.
* Vertical clear length equal to approximate height of tank.
* Minimum clearance 2 inches.
* Securely fastened with1 ½ bolts or rivets.

If horizontal, one near each end on each side tender. Side handholds shall be not less than 24 nor more than 30 inches above center line of coupler, except where tread of ladder is a handhold. Clearance of outer end of handhold shall be not more than 8 inches from end of tender:* Minimum diameter five-eighths of an inch.
* Minimum clear length 16 inches.
* Minimum clearance 2 ½ inches.
* Securely fastened with1 ½ bolts or rivets.
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| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting steam locomotives. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.15 these OJT standards, and to participate in at least five separate inspections of a steam locomotive with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Rear-end handholds(two) horizontal, one near each side of rear end of tender on face of end sill. Clearance of outer end of handhold shall be not more than 16 inches from side of tender:* Minimum diameter five-eighths of an inch.
* Minimum clear length 16 inches.
* Minimum clearance 2 inches.
* Securely fastened with1 ½ bolts or rivets.
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| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting steam locomotives. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.15 these OJT standards, and to participate in at least five separate inspections of a steam locomotive with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Uncoupling levers (two) double levers operative from either side:* Rear-end levers shall extend across end of tender with handles not more than 12 inches from side of tender.
* Not less than 2 inches clearance around uncoupling lever handle.
* Securely fastened with bolts or rivets.
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| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting steam locomotives. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.15 these OJT standards, and to participate in at least five separate inspections of a steam locomotive with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Couplers (two) automatic at rear of tender and front of locomotive:* Couple height no more than 34 ½ from top of rail.
* Coupler height no less than 31 ½ from top of rail.
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| Task X: Apply Safety Appliance Standards Common on Steam Locomotives - Part 231 |
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| **Performance****Tasks** | **Conditions****Tools, Equipment, Documents, Practice** | **Standards****Time, Completeness, or Accuracy** |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting steam locomotives. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.15 these OJT standards, and to participate in at least five separate inspections of a steam locomotive with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Running boards (two) on each side of boiler extending from cab to front end near pilot-beam. Flat-top steam chests may form section of running board:* Minimum width 10 inches.
* If wood not less than 1 ½ inches in thickness.
* If mental not less than 3/16 inches in thickness.
* Securely fastened with bolts, rivets, or studs.

**Note:** Wootten type boilers with cab located on top of boiler more than 12 inches forward from boiler head shall have suitable running boards running from cab to rear of locomotive, with handrailings not less than 20 nor more than 48 inches above outside edge of running boards, securely fastened with bolts, rivets, or studs. |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting steam locomotives. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.17 these OJT standards, and to participate in at least five separate inspections of a steam locomotive with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Handrails two or more - one on each side of boiler extending from near cab to near front end of boiler, and extending across front end of boiler: * Not less than 24 inches or more than 66 inches above running board.
* Minimum 1 inch in diameter.
* Securely fastened to boiler.

Note: Handrails and steps for headlights that cannot be safely and conveniently reached from pilot-beam or steam chests shall be equipped with secure handrails and steps to access headlights. Metal end or side ladder shall be applied to all tanks more than 48 inches in height, measured from the top of end sill, and securely fastened with bolts or rivets. |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting steam locomotives. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.17 these OJT standards, and to participate in at least five separate inspections of a steam locomotive with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Special Requirements for Vanderbilt Tenders:* Running boards (one) on each side of tender not less than 10 inches in width and one on top of tender not less than 48 inches in width, extending from coal space to rear of tender.
* Handrails (one) on each side of top running board, extending from coal space to rear of tank, not less than 1 inch in diameter and not less than 20 inches in height above running board from coal space to manhole.
* Handrail extending from coal space to within 12 inches of rear of tank, attached to each side of tank above side running board not less than 30 nor more than 66 inches above running board.
* Vertical end handhold (one) on each side located within 8 inches of rear of tank extending from within 8 inches of top of end sill to within 8 inches of side handrail. Post supporting rear end of side running board, if not more than 2 inches in diameter and properly located.
* Additional horizontal end handhold shall be applied on rear end when not equipped with vestibules. Handhold to be located not less than 30 nor more than 66 inches above top of end sill. Clear length of handhold to be not less than 48 inches.
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| Task X: Apply Safety Appliance Standards on Passenger Cars with Wide Vestibules- Part 231 |
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| **Performance****Tasks** | **Conditions****Tools, Equipment, Documents, Practice** | **Standards****Time, Completeness, or Accuracy** |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car with wide vestibules. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.12 these OJT standards, and to participate in at least five separate inspections of a wide vestibule passenger car with a qualified person or designated instructor, the trainee will: | Identify the following component and explain why it is either compliance or non-compliant. If non-compliance exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.* Effective handbrake that is located and can be safely operated while the car is in motion.
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| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car with wide vestibules. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.12 these OJT standards, and to participate in at least five separate inspections of a wide vestibule passenger car with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Side handholds (eight), vertically mounted, one on each vestibule door post:* Minimum diameter, five-eighths of an inch, metal.
* Minimum clear length, 16 inches.
* Minimum clearance, 1 ¼ inches.
* Securely fastened with bolts, rivets, or screws.
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| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car with wide vestibules. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.12 these OJT standards, and to participate in at least five separate inspections of a wide vestibule passenger car with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.End handholds (four) mounted horizontal one near each side on each end projecting downward from face of vestibule end sill:* Clearance of outer end of handhold shall be not more than 16 inches from side of car.
* Minimum clear length, 16 inches.
* Minimum diameter, five-eighths of an inch, wrought iron or steel.
* Minimum clearance, 2 inches.
* Handholds shall be flush with or project not more than 1 inch beyond vestibule face.
* Securely fastened with bolts or rivets.

Note: When marker sockets or brackets are located so that they cannot be conveniently reached from platforms, suitable steps and handholds shall be provided for men to reach such sockets or brackets. |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car with wide vestibules. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.12 these OJT standards, and to participate in at least five separate inspections of a wide vestibule passenger car with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.* Uncoupling levers (two), one on each end of car so they can be operated by a person standing on the ground.
* Minimum length 42 inches, measured from center line of end of car to handle of attachment.
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| Task X: Apply Safety Appliance Standards on Passenger Cars with Open-end Platforms - Part 231 |
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| **Performance****Tasks** | **Conditions****Tools, Equipment, Documents, Practice** | **Standards****Time, Completeness, or Accuracy** |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car with open-end platforms. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.13 these OJT standards, and to participate in at least five separate inspections of a passenger car with open-end platforms with a qualified person or designated instructor, the trainee will: | Identify the following component and explain why it is either compliance or non-compliant. If non-compliance exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Effective handbrake that is located and can be safely operated while the car is in motion. |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car with open-end platforms. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.13 these OJT standards, and to participate in at least five separate inspections of a passenger car with open-end platforms with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person. End handholds (four), mounted horizontal one near each side of each end on face of platform end sill, projecting downward:* Clearance of outer end of handhold shall be not more than 16 inches from end of end sill.
* Minimum diameter, five-eighths of an inch, wrought iron or steel.
* Minimum clear length, 16 inches.
* Minimum clearance, 2 inches.
* Handholds shall be flush with or project not more than 1 inch beyond surface of end sill.
* Securely fastened with bolts or rivets.
 |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car with open-end platforms. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.13 these OJT standards, and to participate in at least five separate inspections of a passenger car with open-end platforms with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.End-platform handholds (four), horizontal from or near door post to a point not more than 12 inches from corner of car, then approximately vertical to a point not more than 6 inches from top of platform:* Horizontal portion shall be not less than 24 inches in length nor more than 40 inches above platform.
* Minimum clearance 2 inches.
* Securely fastened with bolts, rivets, or screws.

Note: Cars equipped with safety gates do not require end-platform handholds. |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car with open-end platforms. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.13 these OJT standards, and to participate in at least five separate inspections of a passenger car with open-end platforms with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.* Uncoupling levers (two), one on each end of car so they can be operated by a person standing on the ground.
* Minimum length 42 inches, measured from center line of end of car to handle of attachment.
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| Task X: Apply Safety Appliance Standards on Passenger Cars without End Platforms - Part 231 |
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| **Performance****Tasks** | **Conditions****Tools, Equipment, Documents, Practice** | **Standards****Time, Completeness, or Accuracy** |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car without end platforms. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.14 these OJT standards, and to participate in at least five separate inspections of a passenger car without end platforms with a qualified person or designated instructor, the trainee will: | Identify the following component and explain why it is either compliance or non-compliant. If non-compliance exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Effective handbrake that is located and can be safely operated while the car is in motion. |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car without end platforms. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.14 these OJT standards, and to participate in at least five separate inspections of a passenger car without end platforms with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Sill steps (four) with one located near each end on each side not more than 24 inches from corner of car to center of tread of sill step:* Outside edge of tread of step shall be not more than 2 inches inside of face of side of car.
* Tread shall be not more than 24 above the top of rail.
* Steps exceeding 18 inches in depth shall have an additional tread and be laterally braced.
* Minimum length of tread, 10 inches.
* Minimum cross-sectional area, ½ by 1 ½ inches or equivalent, wrought iron or steel.
* Minimum clear depth, 8 inches.
* Securely fastened with not less than 1/2-inch bolts with nuts outside (when possible) and riveted over, or with not less than 1/2-inch rivets.
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| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car without end platforms. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.14 these OJT standards, and to participate in at least five separate inspections of a passenger car without end platforms with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Side handholds (four) mounted horizontal or vertical, one near each end on each side of car over sill step:* If horizontal, not less than 24 nor more than 30 inches above center line of coupler.
* If vertical, lower end not less than 18 nor more than 24 inches above center line of coupler.
* Minimum diameter, five-eighths of an inch, wrought iron or steel.
* Minimum clear length, 16 inches.
* Minimum clearance, 2, inches.
* Securely fastened with bolts, rivets or screws.
 |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car without end platforms. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.14 these OJT standards, and to participate in at least five separate inspections of a passenger car without end platforms with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.End handholds (four) mounted horizontal one near each side on each end projecting downward from face of end sill or sheathing. Clearance of outer end of handholds shall be not more than 16 inches from side of car:* Handholds shall be flush with or project not more than 1 inch beyond face of end sill.
* Minimum diameter, five-eighths of an inch, wrought iron or steel.
* Minimum clear length, 16 inches.
* Minimum clearance, 2 inches.
* Securely fastened with bolts or rivets.

Note: When marker sockets or brackets are located so that they cannot be conveniently reached from platforms, suitable steps and handholds shall be provided for men to reach such sockets or brackets. |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car without end platforms. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.14 these OJT standards, and to participate in at least five separate inspections of a passenger car without end platforms with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.End handrails (four) on cars with projecting end sills, one on each side of each end:* Extending horizontally from doorpost or vestibule frame to a point not more than 6 inches from corner of car, then approximately vertical to a point not more than 6 inches from top of platform end sill; horizontal portion shall be not less than 30 nor more than 60 inches above platform end sill.
* Minimum diameter, five-eighths of an inch, wrought iron or steel.
* Minimum clearance, 2, inches.
* Securely fastened with bolts, rivets or screws.
 |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car without end platforms. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.14 these OJT standards, and to participate in at least five separate inspections of a passenger car without end platforms with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.Side door steps (one) under each door with outside edge of tread of step not more than 2 inches inside of face of side of car:* Tread not more than 24 above the top of rail.
* Minimum length of tread, 10 inches.
* Minimum cross-sectional area, ½ by ½ inches or equivalent, wrought iron or steel.
* Minimum clear depth, 8 inches.
* Steps exceeding 18 inches in depth shall have an additional tread and be laterally braced.
* A vertical handhold not less than 24 inches in clear length shall be applied above each side-door step on door post.
* Securely fastened with not less than ½ inch bolts with nuts outside (when possible) and riveted over, or with not less than ½ inch rivets.
 |
| **Task X-X:** Demonstrate an understanding of the safety appliance standards when inspecting a passenger car without end platforms. | Given an opportunity to read the appropriate safety appliance diagrams, 49 CFR Part 231, specifically § 231.14 these OJT standards, and to participate in at least five separate inspections of a passenger car without end platforms with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.* Uncoupling levers (two), one on each end of car so they can be operated by a person standing on the ground.
* Minimum length 42 inches, measured from center line of end of car to handle of attachment.
 |

| Task X: Apply Steam Locomotive Movement for Repair Provisions – Part 230 |
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| **Performance****Tasks** | **Conditions****Tools, Equipment, Documents, Practice** | **Standards****Time, Completeness, or Accuracy** |
| **Task X-X:** Demonstrate an understanding of proper movement of an FRA defective steam locomotive. | Using 49 CFR Part 230 as a reference, specifically §230.12, and to initiate at least three different scenarios involving non-compliant steam locomotives, the trainee will:  | Explain, on two separate occasions with 100 percent accuracy, the relevancy on each of the following to the satisfaction of the designated instructor or qualified person:* General limitations
* Non-complying defects.
* Tagging.
* Written notification.
* Notification to crew.
* Location where repairs are made.
* Defects en route.
* Next forward location.
* Yard movements.
 |

| Task X: Apply Steam Locomotive Daily Inspection Requirements – Part 230 |
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| **Performance****Tasks** | **Conditions****Tools, Equipment, Documents, Practice** | **Standards****Time, Completeness, or Accuracy** |
| **Task X-X:** Apply Federal Regulations when inspecting a steam locomotive for compliance with Part 230. | Given an opportunity to read 49 CFR Part 230, specifically § 230.13, these OJT standards, and to participate in at least five separate inspections of a steam locomotive cab with a qualified person or designated instructor, the trainee will:  | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, at least 95 percent of any non-complying conditions noted by the designated instructor or qualified person.* Water glasses, columns, and gage cocks function as intended as evidenced by testing.
* All boiler feed-water delivery systems function as intended as evidenced by testing.
* Steam gauges defective/inoperative.
* Air brake gauges defective/inoperative.
* Air brake valves defective/inoperative.
* Brake pipe leakage does not exceed 5 psi per minute.
* Steam leaks obstructing view of the train crew.
* Locomotive cab controls, e.g., cylinder cocks, sanders, audible warning devices function as intended.
* Cab aprons properly maintained, and in suitable condition for service.
* Cab lights function as intended.
* Head lights illumination that is inadequate.
* Air compressor functions as intended.
* Throttle lever engages properly.
* Reverser gear lever latch engages properly, including steam and air power assist systems if so equipped.
 |
| **Task X-X:** Apply Federal Regulations when inspecting a steam locomotive for compliance with Part 230. | Given an opportunity to read 49 CFR Part 230, these OJT standards, and to participate in at least five separate inspections of a steam locomotive exterior with a qualified person or designated instructor, the trainee will:: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, at least 95 percent of any non-complying conditions noted by the designated instructor or qualified person.* Water or steam leaks from under lagging (seams).
* Stay bolts leaking.
* Washout plugs leaks.
* Mudring leaks.
* Feedwater/delivery systems and related piping with excessive water and/or steam leaks.
 |
| **Task X-X:** Apply Federal Regulations when inspecting a steam locomotive for compliance with Part 230. | Given an opportunity to read 49 CFR Part 230, these OJT standards, and to participate in at least five separate inspections of a steam locomotive driving gear with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, 100 percent of any non-complying conditions noted by the designated instructor or qualified person.* Piston rods cracked or loose.
* Fasteners not properly secured.
* Crossheads and guides do not maintain proper vertical (1/4 inches) and lateral clearance (3/16 inches).
* Valve gear rods do not function properly.
* Connecting rods defective or unsuitable for service. Side motion does not exceed ¼ inches on crack pins.
* Oil and grease cups secured.
* Crank pins loose/defective.
 |
| **Task X-X:** Apply Federal Regulations when inspecting a steam locomotive for compliance with Part 230. | Given an opportunity to read 49 CFR Part 230, tape measure, these OJT standards, and to participate in at least five separate inspections of a steam locomotive foundation brake gear with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, at least 90 percent of any non-complying conditions noted by the designated instructor or qualified person.* Foundation brake gear, including all levers / rods / brake beams / hangers / and pins bind or foul.
* Pins improperly secured.
* Brake shoe improperly aligned with tread of wheel.
* Piston travel limits as prescribed in § 230.76.
* Clearance above top of rail less than 2 ½ inches.
 |
| **Task X-X:** Apply Federal Regulations when inspecting a steam locomotive tender for compliance with Part 230. | Given an opportunity to read § 230.99, a briefing by the designated instructor or qualified person, the trainee will: | Discuss tender axle loads in relation to minimum allowable diameters at journal, wheel seat, and centers, to the satisfaction of the designated instructor or qualified person.  |
| **Task X-X:** Apply Federal Regulations when inspecting a steam locomotive for compliance with Part 230. | Given an opportunity to read 49 CFR Part 230, machinist rule, taper gauge, appropriate wheel gauges, these OJT standards, and to participate in at least five separate inspections of a steam locomotive running gear with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, at least 95 percent of any non-complying conditions noted by the designated instructor or qualified person.* Wheel with a crack or break in the flange / tread / rim / plate / hub / or bracket.
* Wheel slid flat or shelled spot 2 ½ inches or more.
* Wheel or tire flange chipped more than 1 ½ inch in length and ½ inch in width.
* Wheel or tire having broken rim, 5/8 inch above the tread, less than 3 3/4 inches in width.
* Wheel or tire having a seam running lengthwise within 3 3/4 inches from flange.
* Flange worn 15/16 inch thick or less, measured at 3/8 inch above tread.
* Tread worn hollow 5/16 inch or more.
* Flange height less than 1 inch or more than 1 ½ inch measured from tread to top of flange.
* Rim less than 1 inch thick.
* Wheel variance greater than 3/32 inch on same axle or same driving wheel base.
* Lateral motion between wheel hubs and boxes shall not exceed measurements per §230.105.
* Axle bent.
* Journals that are cut and will not run cool without turning.
* Axles with transverse seams or bent.
* Cut journals that cannot be made to run cool without turning.
* Transverse seams in iron or steel axles.
* Seams in axles causing journals to run hot.
 |
| **Task X-X:** Apply Federal Regulations when inspecting a steam locomotive for compliance with Part 230. | Given an opportunity to read 49 CFR Part 230, machinist rule, tape measure, taper gauge, appropriate wheel gauges, these OJT standards, and to participate in at least five separate inspections of a steam locomotive wheel centers with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, at least 95 percent of any non-complying conditions noted by the designated instructor or qualified person.* Filling blocks or shims missing, or improperly applied.
* Wheels centers loose on axle.
* Broken or defective tire fastenings.
* Broken or cracked hubs, plates, bolts or spokes.
* Driving or trailing wheel center with three adjacent spokes or 25 percent or more of the spokes in the wheel broken.
 |
| **Task X-X:** Apply Federal Regulations when inspecting a steam locomotive for compliance with Part 230. | Given an opportunity to read 49 CFR Part 230, these OJT standards, and to participate in at least five separate inspections of a steam locomotive spring rigging with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, at least 95 percent of any non-complying conditions noted by the designated instructor or qualified person.* Top leaf broken or two leaves in top half or any three leaves in spring broken.
* Any spring with leaves excessively shifting in the band.
* Broken coil springs.
* Broken driving box saddle, equalizer, hanger, bolt, or pin.
 |
| **Task X-X:** Apply Federal Regulations when inspecting a steam locomotive for compliance with Part 230. | Given an opportunity to read 49 CFR Part 230, machinist rule, tape measure, taper gauge, appropriate wheel gauges, these OJT standards, and to participate in at least five separate inspections of a steam locomotive tires with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, at least 95 percent of any non-complying conditions noted by the designated instructor or qualified person.* Wheel diameter variance on same axle exceeds 3/32 inches.
* Back to back flange variance on same axle exceeds ¼ inch.
* Tire thickness shall correspond to minimum thickness depending on weight per axle as defined in table §230.112(d).
* Tire width less than 5 ½ inches (standard gage track) and less than 5 inches on narrow gage.
* Plain tires width less and 6 inches on standard gage and 5 ½ inches on narrow gage.
 |
| **Task X-X:** Apply Federal Regulations when inspecting a steam locomotive for compliance with Part 230. | Given an opportunity to read 49 CFR Part 230, these OJT standards, and to participate in at least five separate inspections of a steam locomotive tender trucks, with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, at least 95 percent of any non-complying conditions noted by the designated instructor or qualified person.* An elliptical spring with its top (long) leaf or any other five leaves in the entire spring pack broken.
* Broken coil spring or saddle.
* Coil spring fully compressed.
* Broken or cracked equalizer, hanger, bolt, gib or pin.
* Broken coil spring saddle.
* Semi-elliptical spring with a top (long) leaf broken or two leaves in the top half broken, or any three leaves in the entire spring broken.
* Side bearing in contact not by design.
 |
| **Task X-X:** Apply Federal Regulations when inspecting a steam locomotive for compliance with Part 230. | Given an opportunity to read 49 CFR Part 230, these OJT standards, and to participate in at least five separate inspections of a steam locomotive tender axles and journals, with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, at least 95 percent of any non-complying conditions noted by the designated instructor or qualified person.Tender axle:* Bent.
* Collars broken, cracked, or worn less than ¼ or less in thickness.
* Accident damage.
* Fillet in the back shoulder that is worn out.
* A gouge between the wheel seats more than 1/8 inch in depth.

Tender journal:* Cuts or seams causing overheating.
* Transverse seams.
* A circumferential score.
* Corrugation.
* Pitting.
* Rust.
* Etching.
 |
| **Task X-X:** Apply Federal Regulations when inspecting a steam locomotive for compliance with Part 230. | Given an opportunity to read 49 CFR Part 230, these OJT standards, and to participate in at least five separate inspections of a steam locomotive and tender plain bearing journal boxes, with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, at least 95 percent of any non-complying conditions noted by the designated instructor or qualified person.Tender plain bearing box: * Does not contain visible free oil.
* Lid that is missing, broken, or stuck open.
* Contains foreign matter that could damage bearing.

Lubricating pad:* Missing.
* Not in contact with the journal.
* Torn 50 percent or more.
* Scorched, burned, or glazed.
* Decayed or deteriorated that impairs proper lubrication.

Plain bearing: * Missing, cracked, or broken.
* Liner loose, or broken out piece.
* Evidence of being overheated.

Plain bearing wedge:* Missing, cracked or broken.
* Not located in its design position.
 |
| **Task X-X:** Apply Federal Regulations when inspecting a steam locomotive for compliance with Part 230. | Given an opportunity to read 49 CFR Part 230, these OJT standards, and to participate in at least five separate inspections of a steam locomotive tender frame and body, with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, at least 95 percent of any non-complying conditions noted by the designated instructor or qualified person.Tender:* Height variance between deck and cab deck does not exceed ½ inch.
* Minimum gangway width between tender and locomotive measured on tangent track 16 inches.
* Less than 2 ½ from the top of rail.
* Center sill broken, cracked more than 6 inches, or permanently bent or buckled more than 2 ½ inches in any six foot length.
* Coupler carrier that is broken or missing.
* Center plate, any portion missing or broken or not properly secured.
* Side sill, crossbearer, or body bolster broken.
 |
| **Task X-X:** Apply Federal Regulations when inspecting a steam locomotive for compliance with Part 230. | Given an opportunity to read 49 CFR Part 230, these OJT standards, and to participate in at least five separate inspections of a steam locomotive draft system with a qualified person or designated instructor, the trainee will: | Identify each of the following components and explain why each is either compliance or non-compliant. If non-compliance with any of these components exists, find, on three separate inspections, at least 95 percent of any non-complying conditions noted by the designated instructor or qualified person.* Safety bar(s) or safety chains properly secured with proper length.
* Draft gear and associated attachments function as intended and securely fastened.
* Lost motion between steam locomotive and tender does not exceed ½ inch.
* Springs buffers if used under sufficient compression keep chafing faces in contact.
* Chafing irons properly secured and provide the required vertical and lateral movement.
 |

| Task X: Apply 31 Service Day Inspection Items - Part 230 |
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| **Performance****Tasks** | **Conditions****Tools, Equipment, Documents, Practice** | **Standards****Time, Completeness, or Accuracy** |
| **Task X-X:** Demonstrate an understanding of steam locomotive 31 Service Day inspection items. | Given an opportunity to read 49 CFR Part 230, specifically § 230.14, these OJT standards, and to participate in at least three separate 31 Service Day inspections of a steam locomotive with a qualified person or designated instructor, the trainee will: | Perform each of the following on two separate occasions with 100 percent accuracy to the satisfaction of the designated instructor or qualified person.* Wash boiler.
* Clean water glasses and gauge cocks.
* Clean arch tube, thermic siphons, and circulators (when equipped).
* Service/inspect all boiler washout plugs.
* Service/inspect/test staybolts.
* Service/inspect/remove fusible plugs (when equipped).
* Complete Form 1.
 |

| Task X: Apply 92 Service Day Inspection Items - Part 230 |
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| **Performance****Tasks** | **Conditions****Tools, Equipment, Documents, Practice** | **Standards****Time, Completeness, or Accuracy** |
| **Task X-X:** Demonstrate an understanding of steam locomotive 92 Service Day inspection items. | Given an opportunity to read 49 CFR Part 230, specifically § 230.15, these OJT standards, and to participate in at least three separate 92 Service Day inspections of a steam locomotive with a qualified person or designated instructor, the trainee will: | Perform each of the following on two separate occasions with 100 percent accuracy to the satisfaction of the designated instructor or qualified person.* Remove and test all air and steam gauges, (see § 230.45 for steam gauge test procedures).
* Clean steam gauge siphon pipe.
* Renew all tubular water glasses.
* Test and adjust all safety relief valves.
* Orifice test air compressor, )see § 230.71 for test procedures and operational efficiency)
* Test/repair main reservoirs for excessive leakage, (see § 230.78(a) for test procures).
* Test/repair all brake cylinders for excessive leakage, (see § 230.78(b) for test procedures).
* Enter and inspect tender tank interior for defects.
* Complete Form 1.
 |

| Task X: Apply Annual Inspection Items - Part 230 |
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| **Performance****Tasks** | **Conditions****Tools, Equipment, Documents, Practice** | **Standards****Time, Completeness, or Accuracy** |
| **Task X-X:** Demonstrate an understanding of steam locomotive Annual inspection items. | Given an opportunity to read 49 CFR Part 230, specifically § 230.16, these OJT standards, and to participate in at least three separate Annual inspections of a steam locomotive with a qualified person or designated instructor, the trainee will: | Perform each of the following on two separate occasions with 100 percent accuracy to the satisfaction of the designated instructor or qualified person.* Remove arch brick and test thickness of arch and water bar tubes.
* Perform a hydrostatic test of the boiler at 25 percent of MWAP with metal temperature between 70 and 120 degrees Fahrenheit.
* Service/inspect/test staybolts.
* Test thickness of dry pipes.
* Enter and inspect the smokebox for defects.
* Enter and inspect the boiler interior for defects.
* Perform hammer or UT test and hydrostatic test at MAWP on main reservoirs (non-welded and drilled).
* Remove and inspect drawbars and pins via NDE
* Inspect longitudinal lap joint boiler seams.
* Remove and inspect all staybolt cap and sleeves for defects (every 5 years).
* Complete Form 3.

Note: Trainee will explain to the satisfaction of the designated instructor or qualified person, all qualifying events that trigger a hydrostatic test of the boiler. |

| Task X: Apply 1472 Service Day Inspection Items - Part 230 |
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| **Performance****Tasks** | **Conditions****Tools, Equipment, Documents, Practice** | **Standards****Time, Completeness, or Accuracy** |
| **Task X-X:** Demonstrate an understanding of steam locomotive 1472 Service Day inspection items. | Given an opportunity to read 49 CFR Part 230, specifically § 230.17, these OJT standards, and to participate in at least three separate 1472 Service Day inspections of a steam locomotive with a qualified person or designated instructor, the trainee will: | Perform each of the following on two separate occasions with 100 percent accuracy to the satisfaction of the designated instructor or qualified person.* Remove boiler flues, clean and inspect boiler interior for defects.
* Remove jacket and lagging and inspect boiler exterior for defects.
* Inspect and clean locomotive frame.
* Perform a hydrostatic test of the boiler at 25 percent of MWAP with metal temperature between 70 and 120 degrees Fahrenheit.
* Conduct boiler survey and verify thickness of boiler proper.\*
* Update Specification Card Form 4.\*

\*These steps only required for safety-related railroad employees responsible for calculation, completion, and execution of Specification Card Form 4. |